

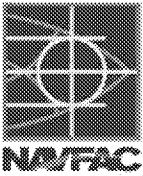


STATUS OF NAVY'S ENVIRONMENTAL RESTORATION ACTIVITIES

NWIRP BETHPAGE
LONG ISLAND, NEW YORK

03/18/2015 revised

Outline of Presentation



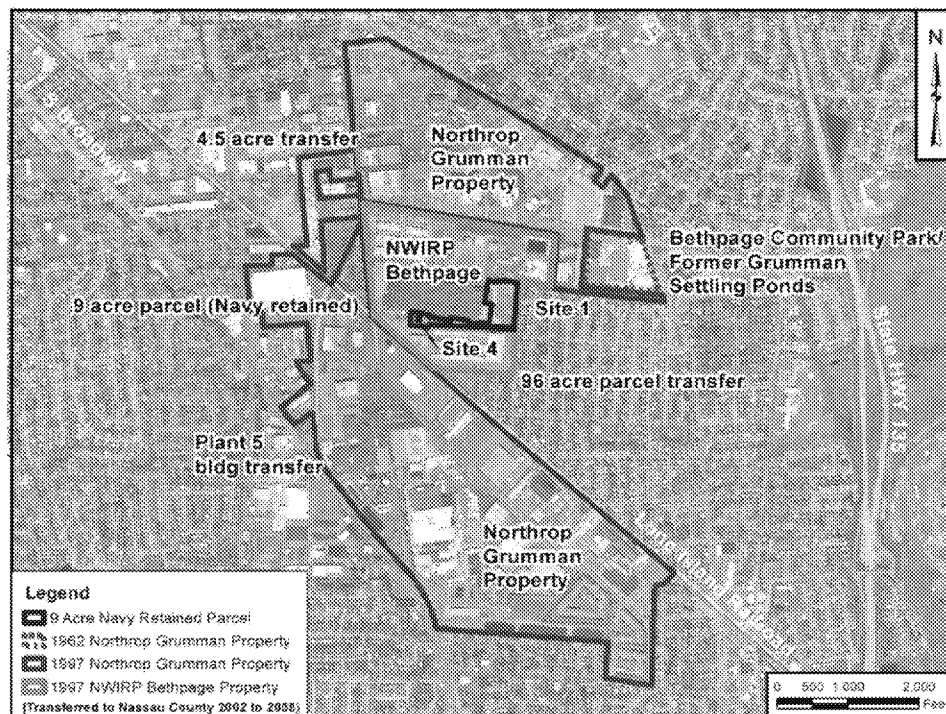
- Introduction
- Environmental Overview
- Public Water Supply Wellfields
- Off Property Activities
- Hot Spot Areas
- Evaluation of Plume Containment
- Plume and Outpost Monitoring

NOTE: As a former owner of NWIRP-Bethpage, the DON has stepped forward to undertake or fund certain response actions to ensure protection of human health and the water supply that may be threatened by the release of hazardous substances that may be migrating, at least in part, from NWIRP-Bethpage. This should not be interpreted as a indicative of the Navy's position on which parties bear legal responsibility for such response actions and response costs, or any other response actions and response costs arising from Bethpage, and to what extent.

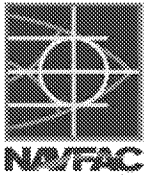
Introduction



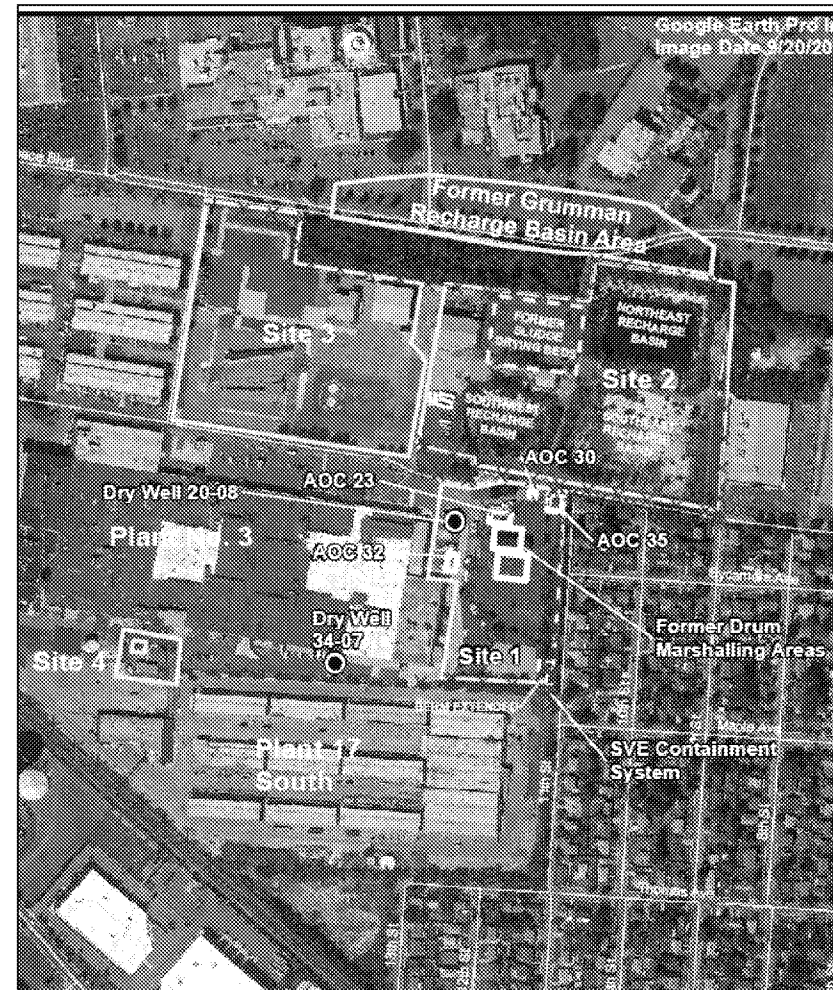
- Former Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage government-owned contractor-operated (GOCO) facility was established in the 1940s to build Navy aircraft (approx. 109 acres in the 1990s)
- Northrop Grumman (NG) owned underlying land for much of WWII and operated the NWIRP as a contractor; also owned and operated its own facility (approximately 500 acres) adjacent to NWIRP.
- Production ended in 1996
- NWIRP property was under the jurisdiction of NAVAIR
- Cleanup conducted by NAVFAC under the Environmental Restoration (ER) Program
 - Navy is subject to authorization and the availability of funds
 - Contamination has to have migrated, at least in part, from the NWIRP



Environmental Overview



- 1995 Navy OU1 ROD (On property-NWIRP)
 - Navy provided funding to BWD Plant 5 in 1996
 - Sites 2 and 3 Response Actions of excavation and capping completed in 2002, last five-year review completed in 2014
 - Site 1: Response Action of source area removal of VOCs in soil and shallow groundwater completed in 2002
 - Excavation and capping for non-VOCs (mostly PCBs) delayed due to increased volume
 - PCBs and chromium identified in groundwater in 2010 and 2012, respectively
 - 2015 RI/FS addendum in progress and a new decision document anticipated
- Anticipated Navy OU3 ROD (On property-NWIRP)
 - Site 4 – Petroleum impacted soil and groundwater commingled with chlorinated solvents and metals



–Hot Spot Areas

- Plume monitoring and Outpost wells installation and monitoring are ongoing

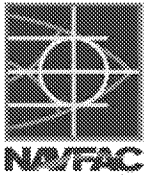
Legend

- ★ Public Waste Storage Units with VOC Threshold
- ⊗ Public Waste Storage Units without VOC Threshold
- ⊕ Remediation Unit
- ⊞ 1912 Hooker/Ruco Superfund Site
- ⊞ 1967 50N95F Bethpage Property
- ⊞ 1997 Northrop Grumman Property
- ⊞ Shadow 50N95F-1912 Plume
- ⊞ Deep NG/NWIRP OU2 Plume
- ⊞ NG/NWIRP 2002 OU2 Hot Spot (IGM-38)
- ⊞ Bethpage Community Park OU3 Plume
- ⊞ BCP Plume
- ⊞ BWD Plant 6 Hot Spot
- ⊞ Shallow NG/NWIRP OU2 Plume

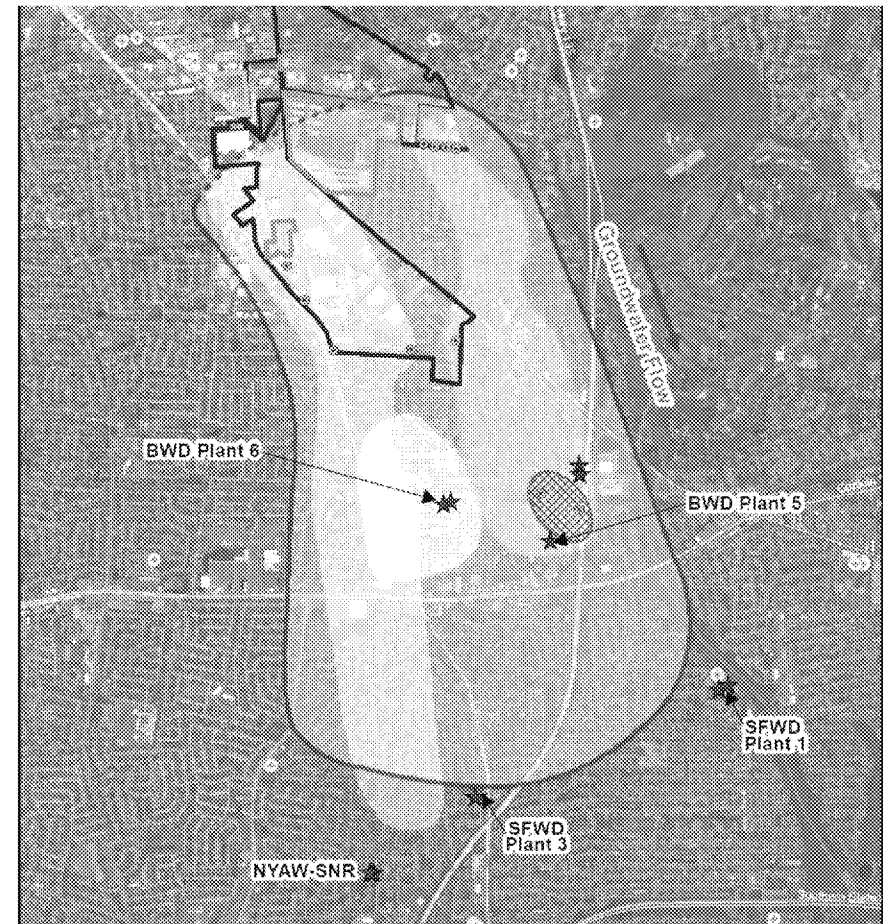
Scale: 0 1 2 3 4 Miles

Public Water Supply Wellfields

Wellhead Treatment Systems Funded by U.S.

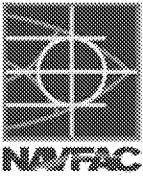


- Bethpage Water District (BWD)
 - Plant 5 - VOC treatment, air stripping, 1996
 - Plant 6 - VOC treatment, granular activated carbon (GAC) upgrades, 2011 and additional upgrades planned
- South Farmingdale Water District (SFWD)
 - Plant 1 - VOC treatment, air stripping, 2011
 - Plant 3 - VOC treatment, air stripping, 2013
- New York American Water (NYAW)
 - Seamans Neck Road, Interim GAC system, 2012
 - Full scale system, 2015



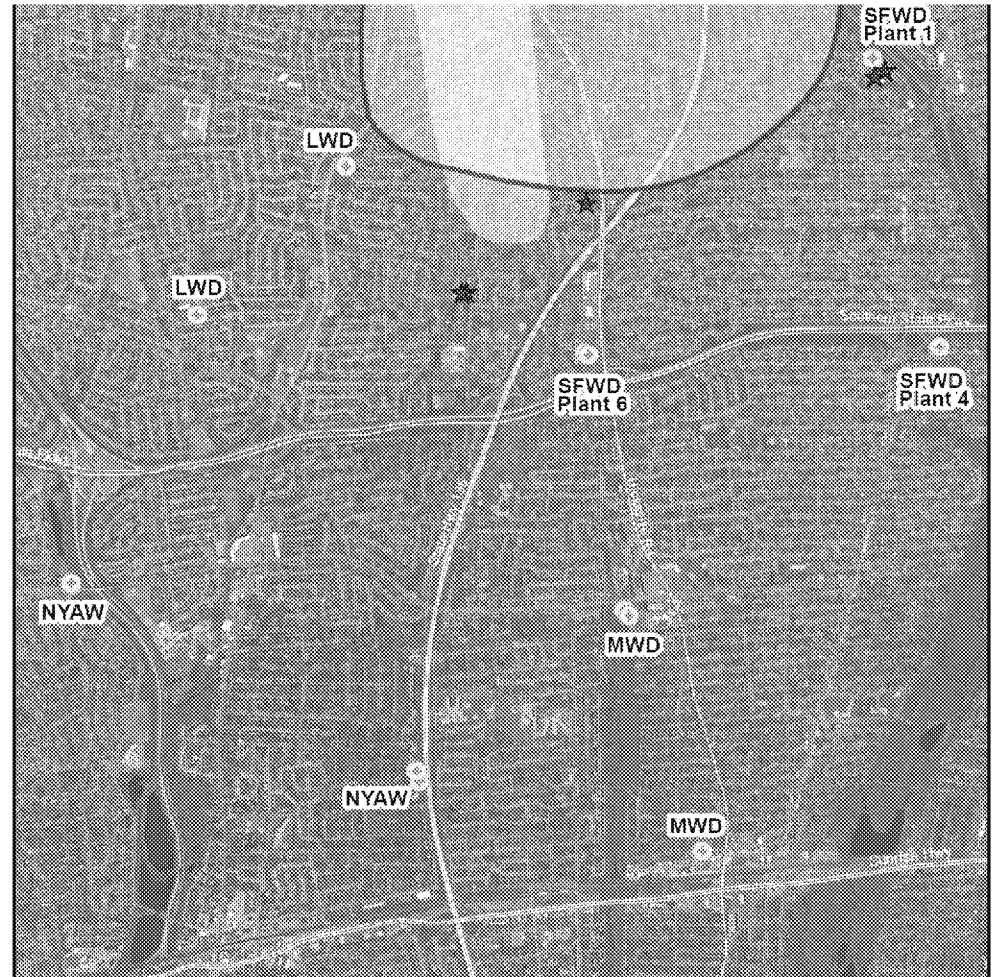
Public Water Supply Wellfields

Potentially Impacted Wellfields

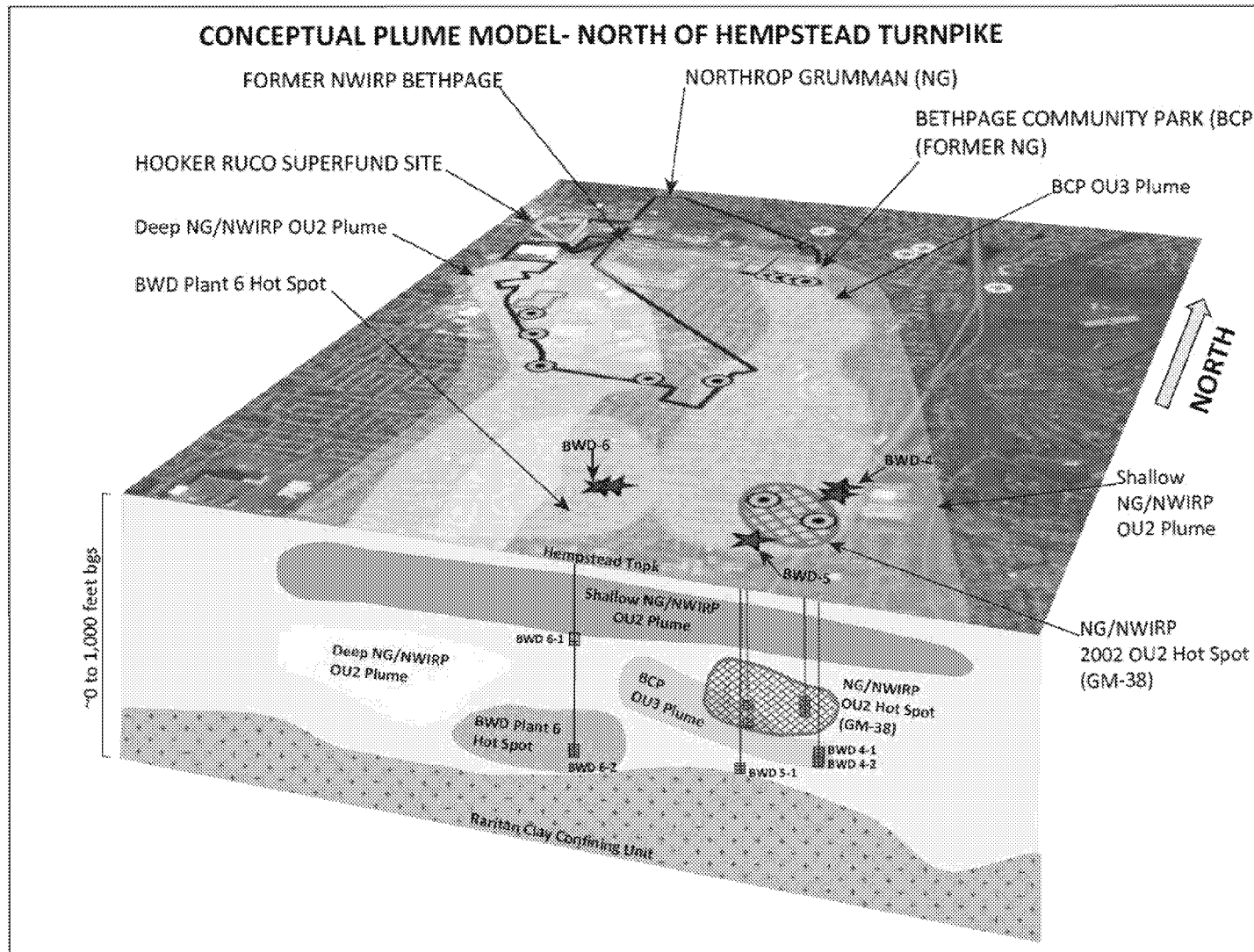
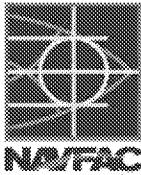


Well Fields Potentially Impacted within next 5 to 30 years:

- South Farmingdale Water District (SFWD) Plants 4 and 6
- Levittown Water District (LWD) – VOC impacts are being evaluated, may not be related to NWIRP (Well 5303)
- Massapequa Water District (MWD), distant from plume (Wells 6866 & 6867)
- New York American Water (NYAW) distant from plume (Wells 5767, 7414, 8603, 8837, 9911 and 10863)



Off-Property Activities



9:00K: RUCO/Bethpage/21/rev:RUCO/Bethpage/17/0015: a:NAVFAC 03/13/2015

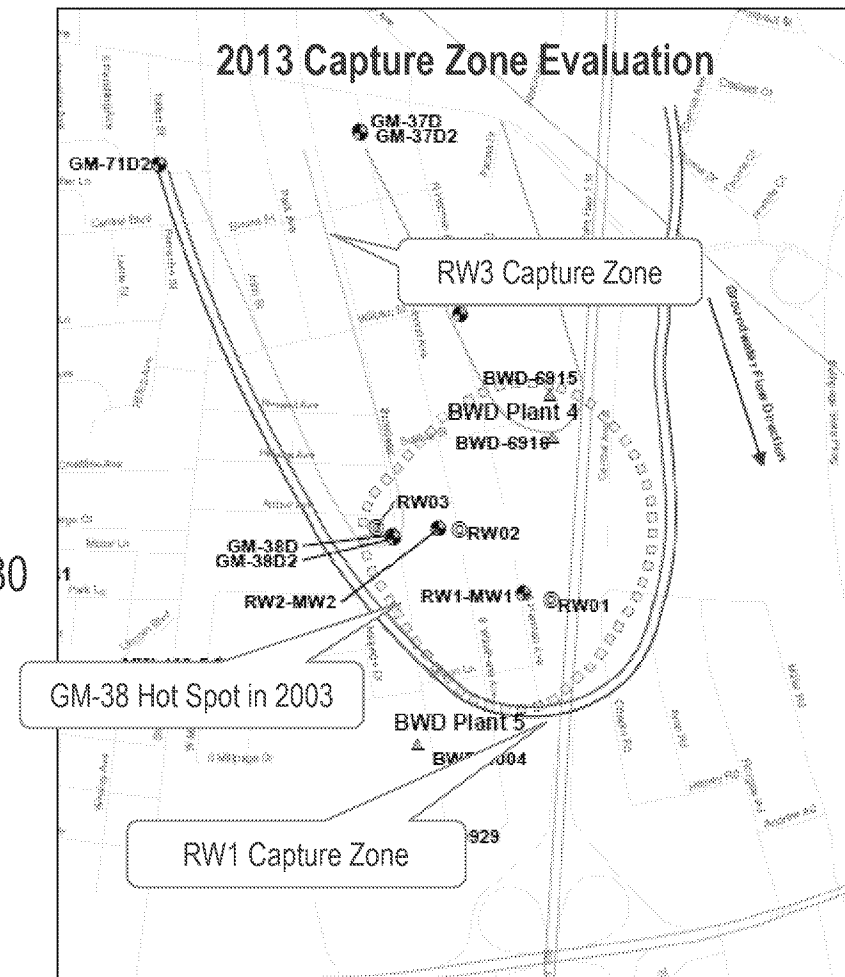
Hot Spot Area

• GM38 Treatment System

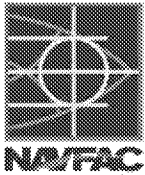
- Design started in 2002
- Utilized undeveloped property
- Treatment system consists of air stripping, liquid phase GAC, vapor phase GAC/oxidation
- Discharges to a local recharge basin
- System started operation in 2009 and treats approximately 1.4 million gallons per day (MGD)
- Approximately 4 tons of VOCs removed from the aquifer since startup
- Groundwater concentrations have decreased by 80 to 95 percent
- USGS provided modeling support

• Path Forward

- Optimization activities underway to improve performance and progress toward shutdown
- Evaluate potential for a continuing source of RW3 from the northwest

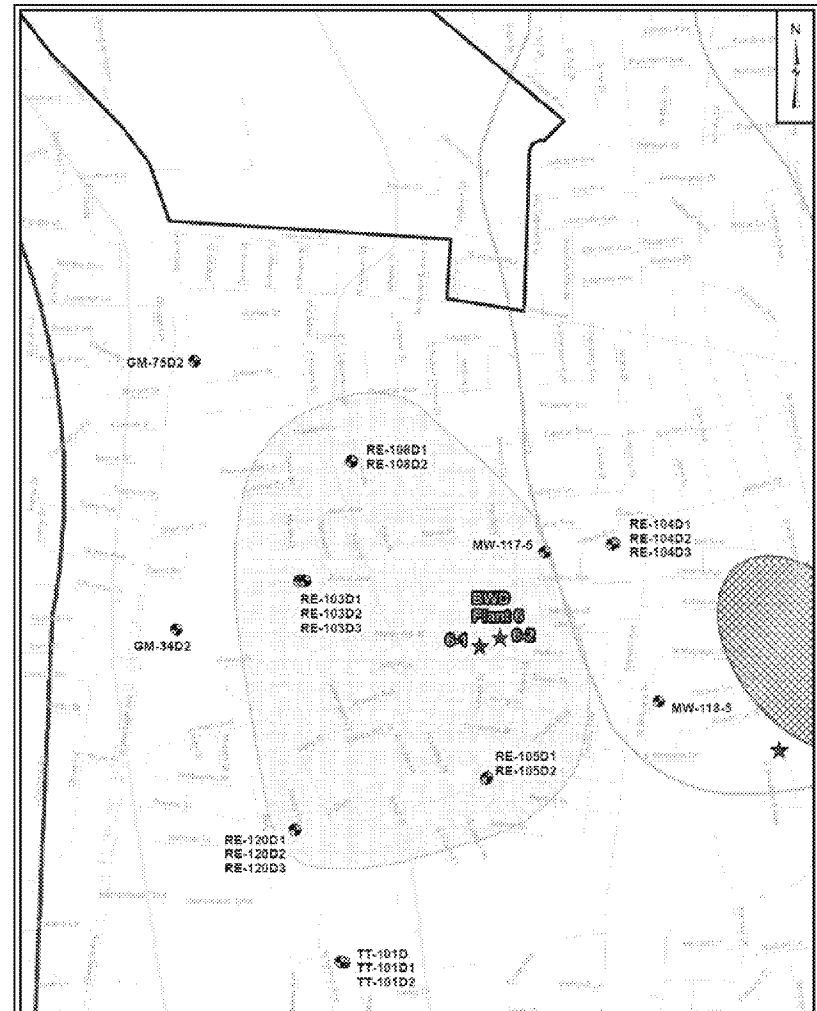


Hot Spot Area

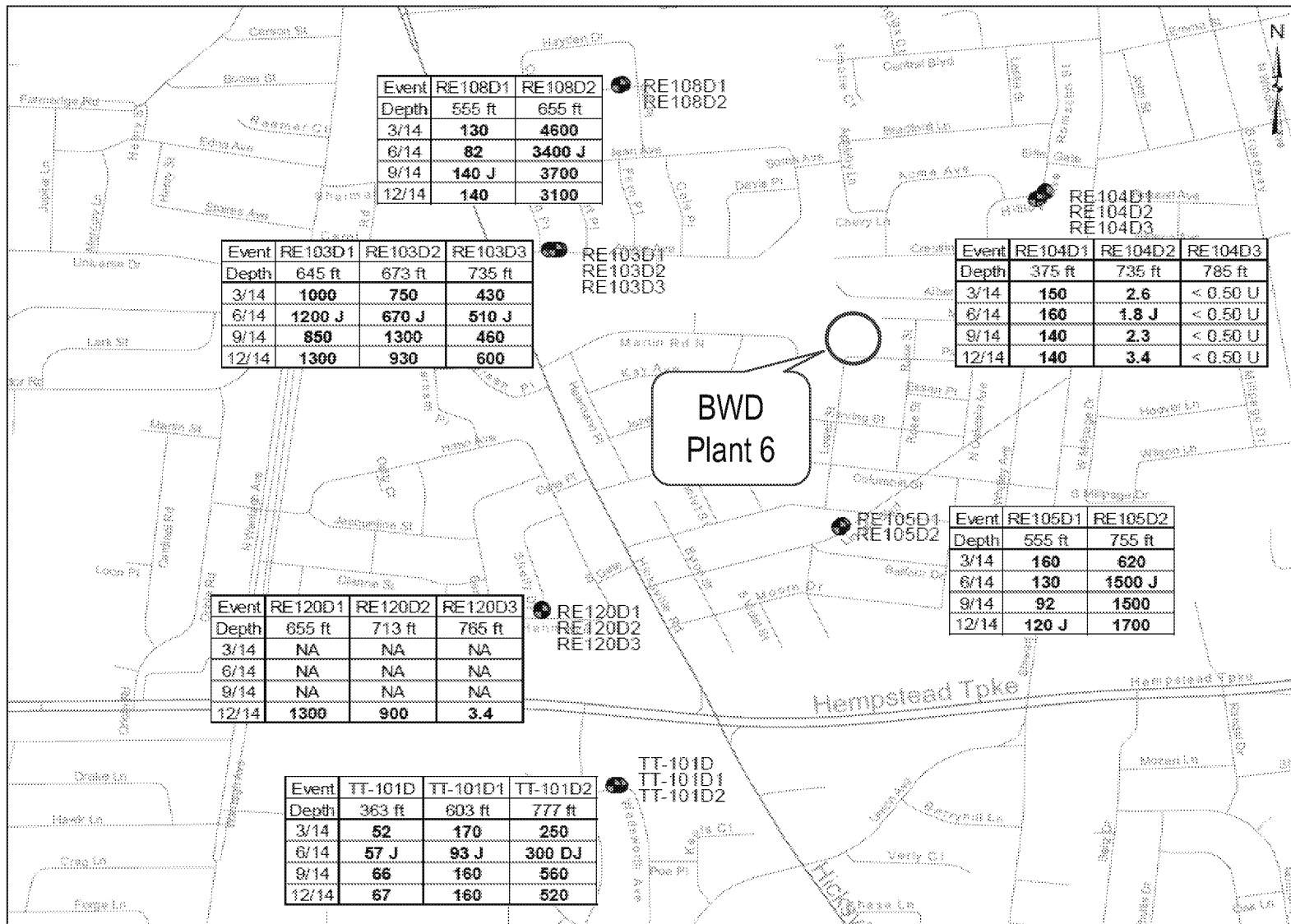
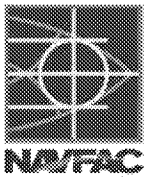


• RE108 Hot Spot

- Confirmed the presence of a new hot spot in 2014,
- Well is screened at 700 to 770 feet below ground surface (bgs), which is much deeper than the NG/NWIRP OU2 plume was initially modeled
- Source is uncertain, possible sources include residual release (pre-ONCT), bypass and/or underflow of ONCT
- Understanding the source is needed to help define the extent of the hot spot and plan and design capture and treatment, if needed



Hot Spot Area

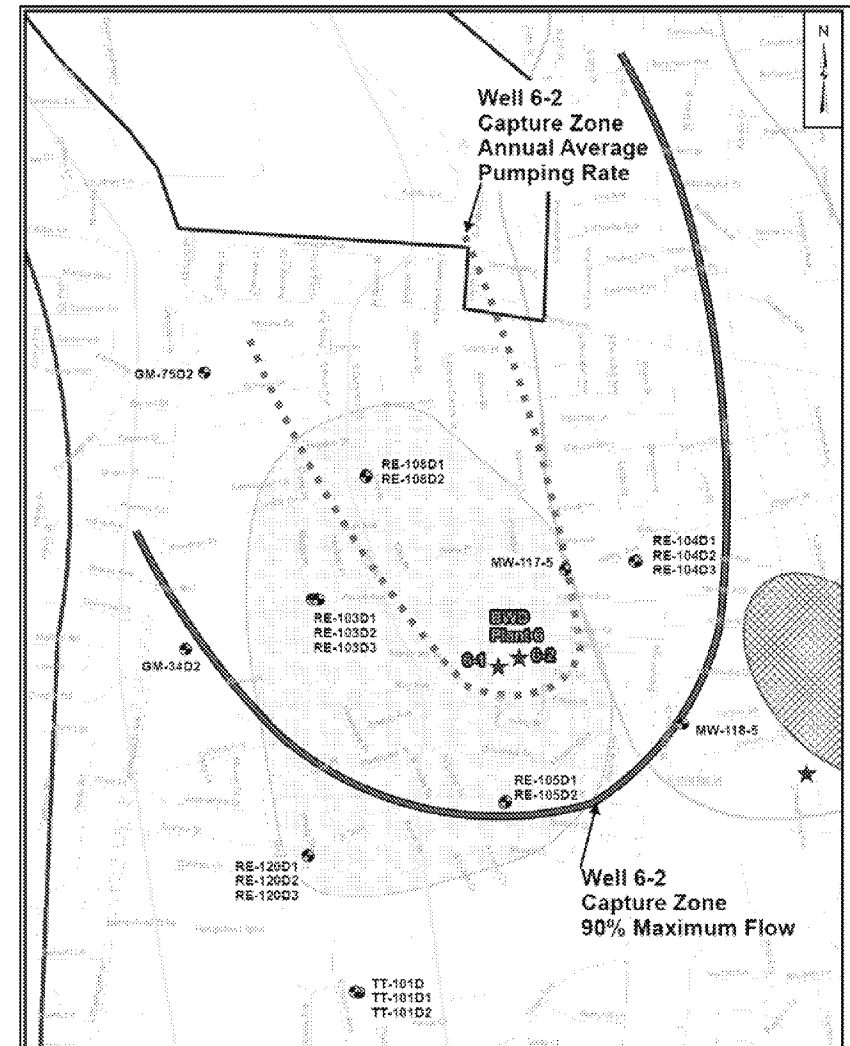


Hot Spot Area



- RE108 6 Hot Spot

- A short term pumping test and capture zone analysis conducted in 2013 suggests that BWD Well 6-2 operating at capacity may be able to capture most or all of the hot spot
- A three-month pilot scale test using enhanced pumping at BWD 6-2 to capture the hot spot is planned for 2015
- Evaluate the potential for sustained mass removal
- Groundwater investigations being conducted to delineate the extent of the hot spot and identify other source(s), if present



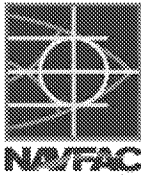
Hot Spot Area

• RE108 Hot Spot

- Navy is investigating potential locations for an additional stand-alone treatment plant in the event that enhanced pumping at BWD Plant 6 is not adequate.
- Limiting factors for identifying new plant locations include:
 - Proximity to the plume
 - Transportation of VOC-contaminated groundwater through residential neighborhoods
 - Available space with buffer (minimum 2 acres)
 - Need to obtain access to property



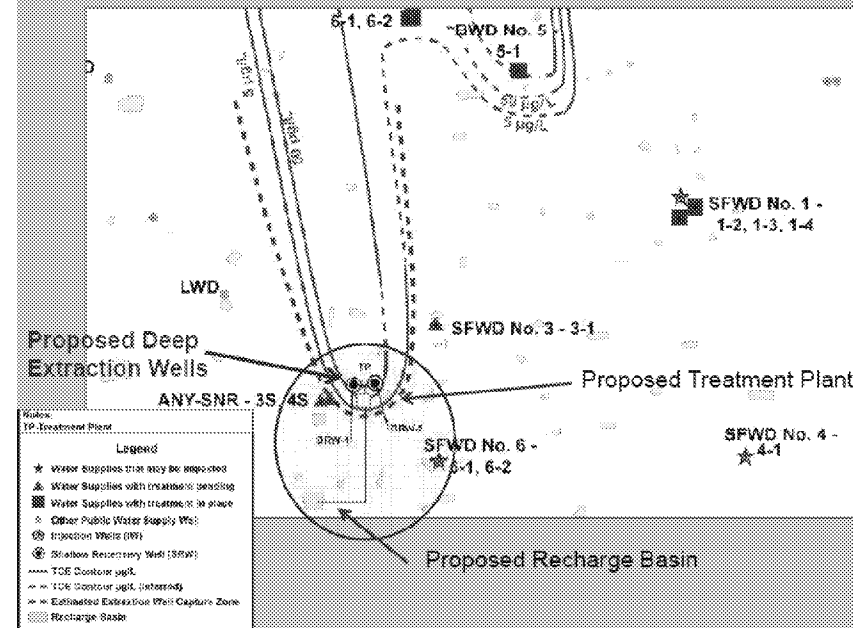
Evaluation of Plume Containment



• Plume Containment

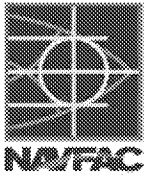
- 2011, Navy assembled team of third party experts to evaluate effectiveness of off-property OU2 GW remedy - one suggestion was to evaluate alternatives for managing impacted groundwater
- 2012 Alternatives Report suggested to explore opportunities to use existing water districts infrastructure for enhanced pumping that are strategically located (NYAW-SNR, SFWD Plants 3 and 6)
- In its review of the Alternatives Report, USACE recommended an alternative approach
 - Install and operate a stand alone GW extraction and treatment system
 - Capture known finger of the OU2 GW plume

Figure 2: Alt. 2A/2B-Hybrid - Proposed Deep Extraction Wells



Reference: USACE Review of Navy's
Alternatives Report

Plume and Outpost Monitoring

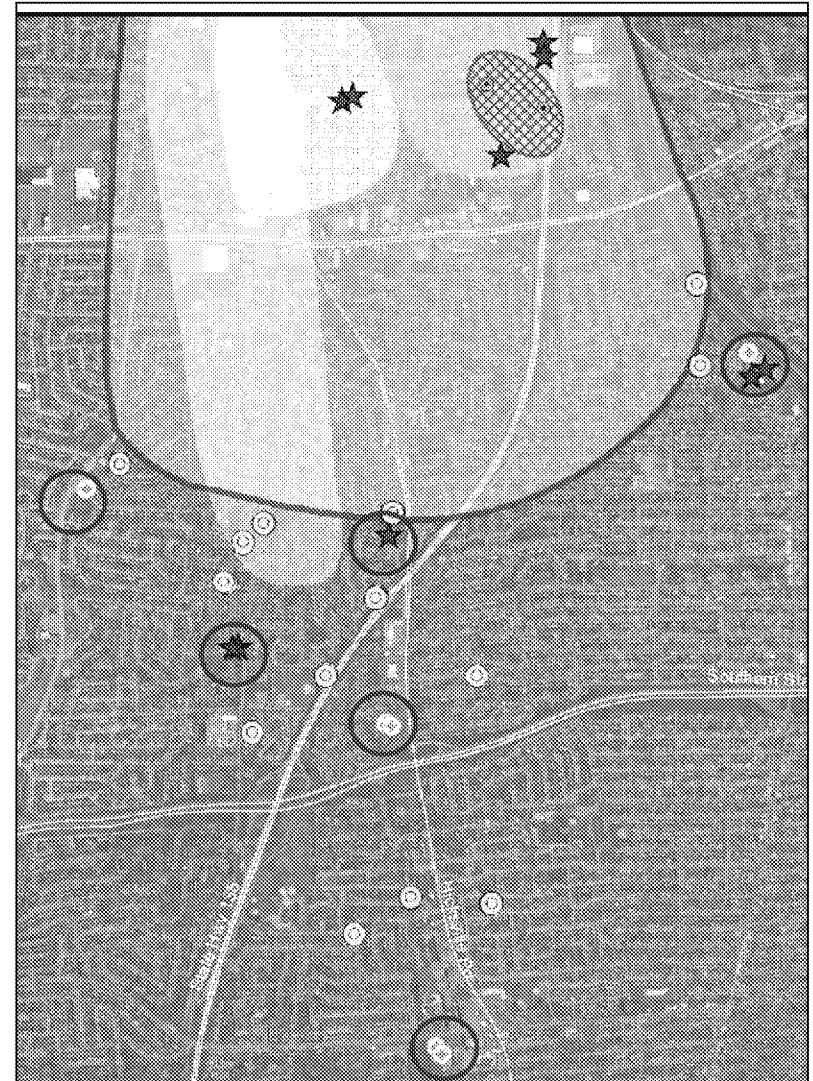


- Plume Monitoring

- Additional VPBs to be installed in south eastern portion of plume

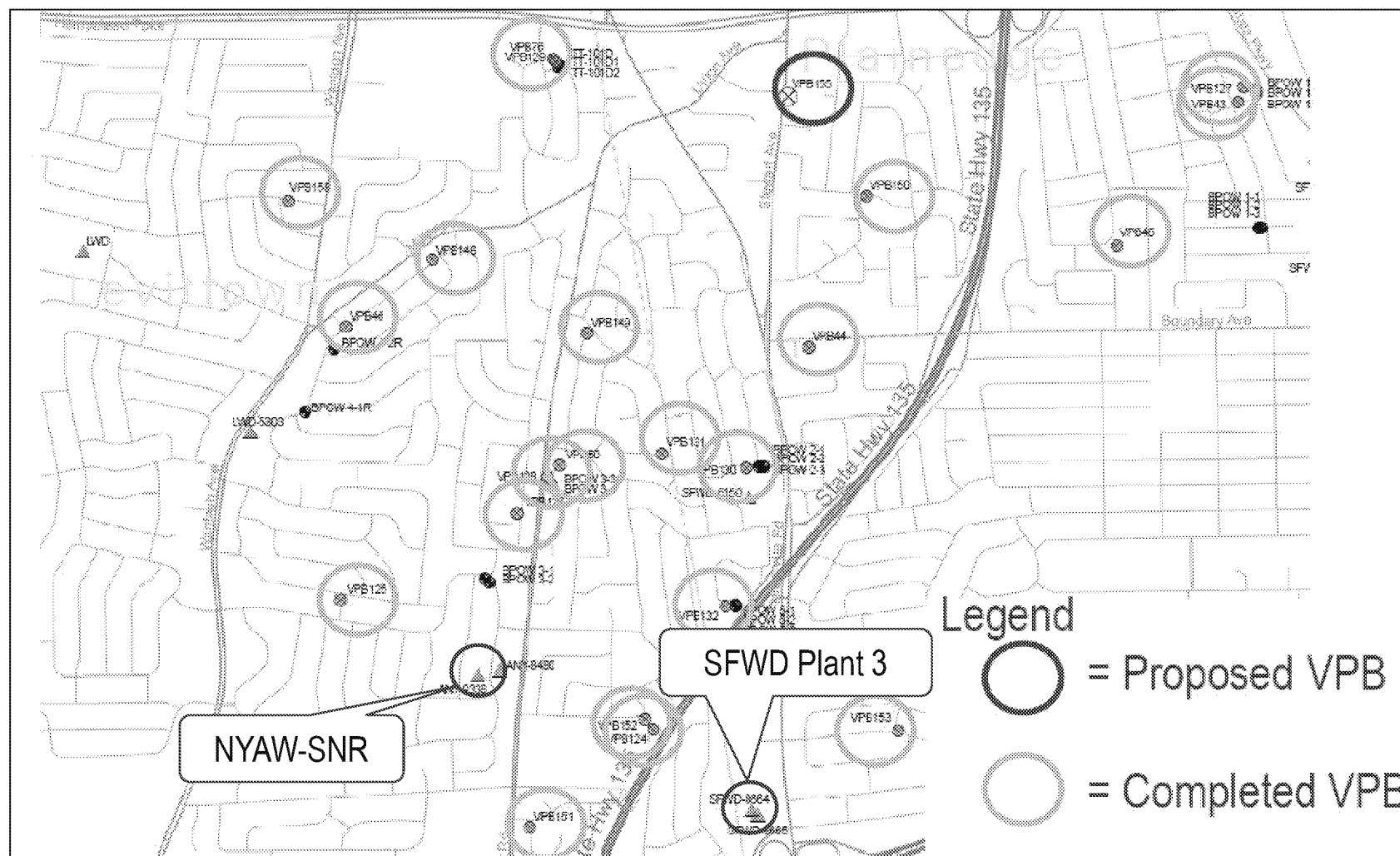
- Outpost Monitoring Wells

- Additional monitoring wells are being installed upgradient of water districts to provide an early warning of a potential advancing plume
- Wells will then be evaluated for connectivity to the water supply and enhanced, if necessary
- Based on current schedule, these outpost wells will be completed by end of 2015
- Additional locations to be determined in the future



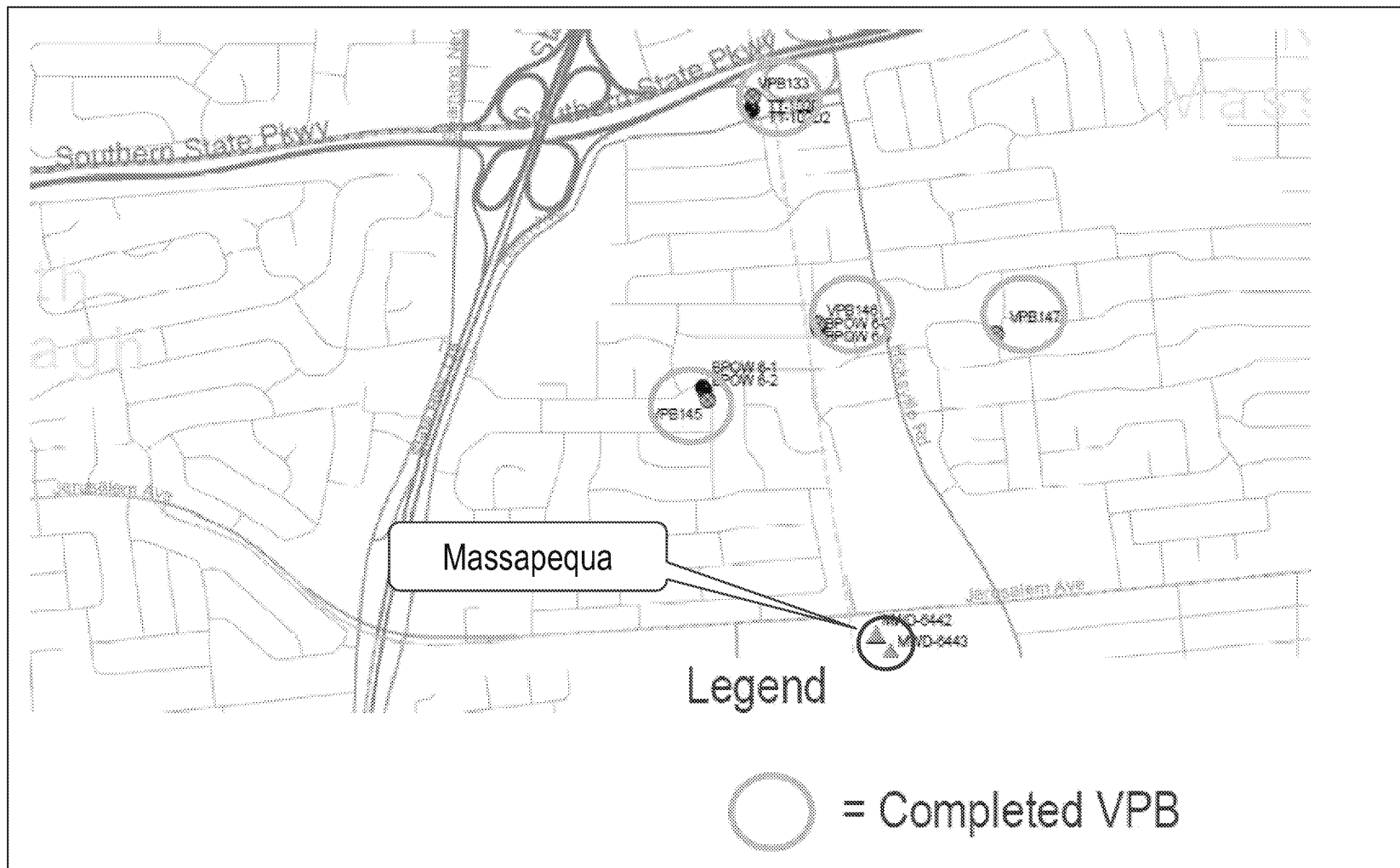
Plume Monitoring

• South Farmingdale/New York American Water Area



Outpost Monitoring

• Outpost Monitoring Wells – Massapequa Area



Questions